# CE-1 SERVICE NOTES

## CONTENTS



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Roland

(NOV. 1984 3rd printing E-2) Printed in Japan Nov. '82 E-2

# 1. SPECIFICATIONS

- Input Sensitivity ........ 80mV/10mV
- Output Level ........ 200mV
- Signal-to-Noise Ratio ........ 60dB (over 75dB when Noise Killer operates)
- Control: Level Control
  Chorus Intensity
  Vibrato Depth
  Vibrato Rate
- Switch: Power Switch
  Input Sensitivity (High/Low)
  Normal/Effect
  Chorus/Vibrato
- Indicator: Peak Level
  Chorus/Vibrato/Normal
- Jack: Input ........ 1
  Output ........ 2
- Dimensions and Weight:
  Overall Dimensions ........ 260(W) x 64(H) x 180(D)mm
  Net Weight ........ 1.8kg
- AC Mains ........ 100/117/220/240V, 50/60Hz
- Power Consumption ........ 3W max.

# 2. CIRCUIT DESCRIPTION

CE-1 adds chorus or vibrato effect to various input music signals by means of a BBD (bucket brigade device), which produces a signal with delayed pitch from the straight signal. The chorus or vibrato effect is produced by modulating, with triangular or sine wave, respectively, the clock pulse that drives the BBD gate.

## 2-1. MIC AMP

When using small output sources like microphone, the MIC AMP amplifies the input signal by 20dB (10 times).

## 2-2. PEAK LEVEL DRIVE

When input signal to the BBD goes beyond 3Vp-p, this circuit is actuated to light up the peak level lamp.

## 2-3. CLOCK GENERATOR

This circuit oscillates clock pulse (60KHz – 200KHz) that functions to open or close the BBD gate.

## 2-4. CHORUS/VIBRATO GENERATOR

This is a low frequency oscillator that functions to modulate the clock pulse to drive the BBD gate.

It generates a triangular wave of 2.4sec – 325msec for chorus effect and a sine wave of 325msec – 90msec for vibrato effect.

## 2-5. LOW-PASS FILTER

This is one-transistor, active low pass filter (Q10) to eliminate clock pulse leakage (over 60KHz) that is superposed on the output from BBD.

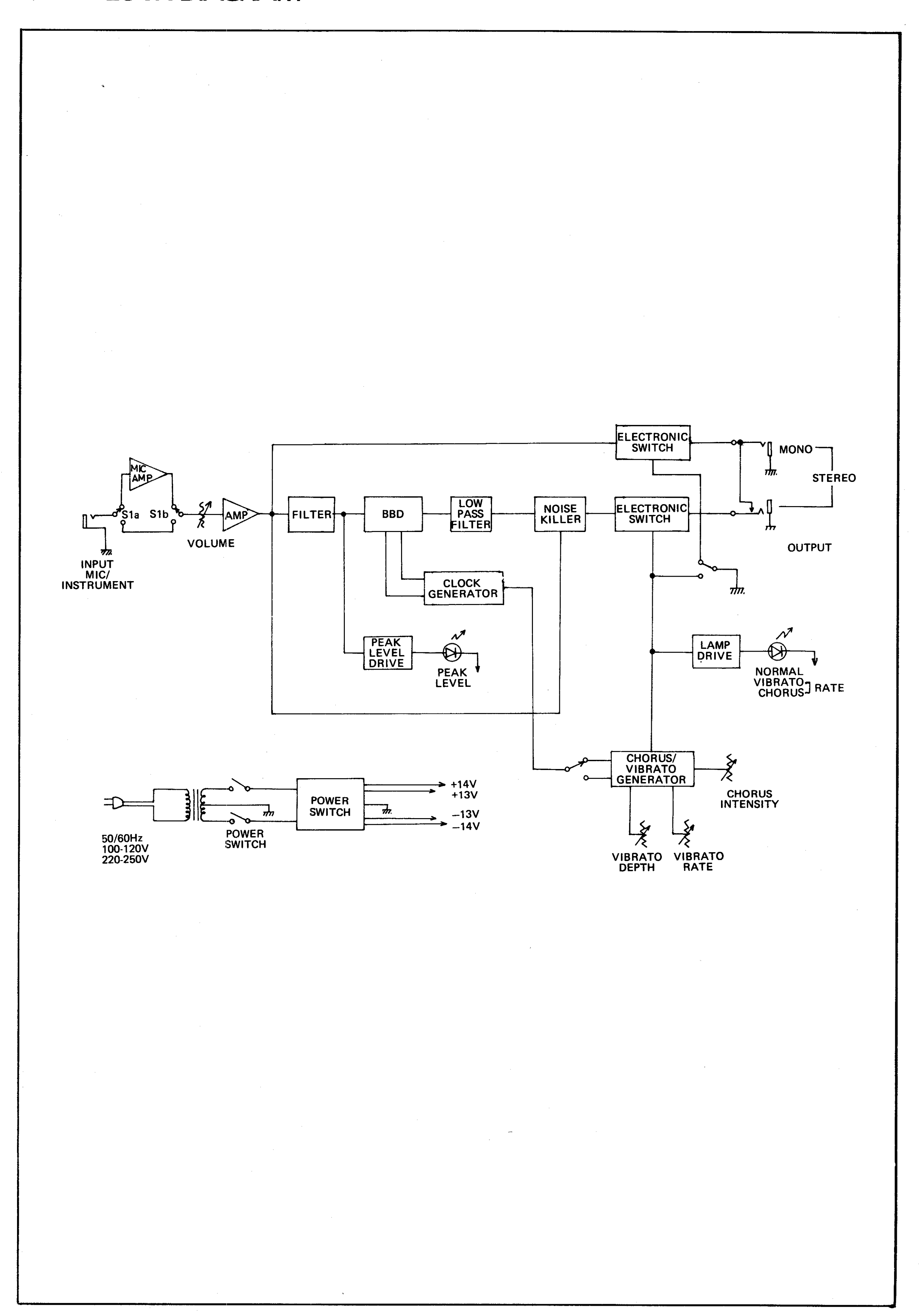
## 2-6. NOISE KILLER

This circuit functions to eliminate the noise generated in BBD. When the input signal is so small that the output level from IC1 is less than 10mV, FET, Q12, conducts to pass the noise to ground.

## 2-7. ELECTRONIC SWITCH

Two FET's compose an electronic switch. When NORMAL/EFFECT switch is set to NORMAL, FET, Q13, non-conducts to cancel the effect signal.

# 3. BLOCK DIAGRAM

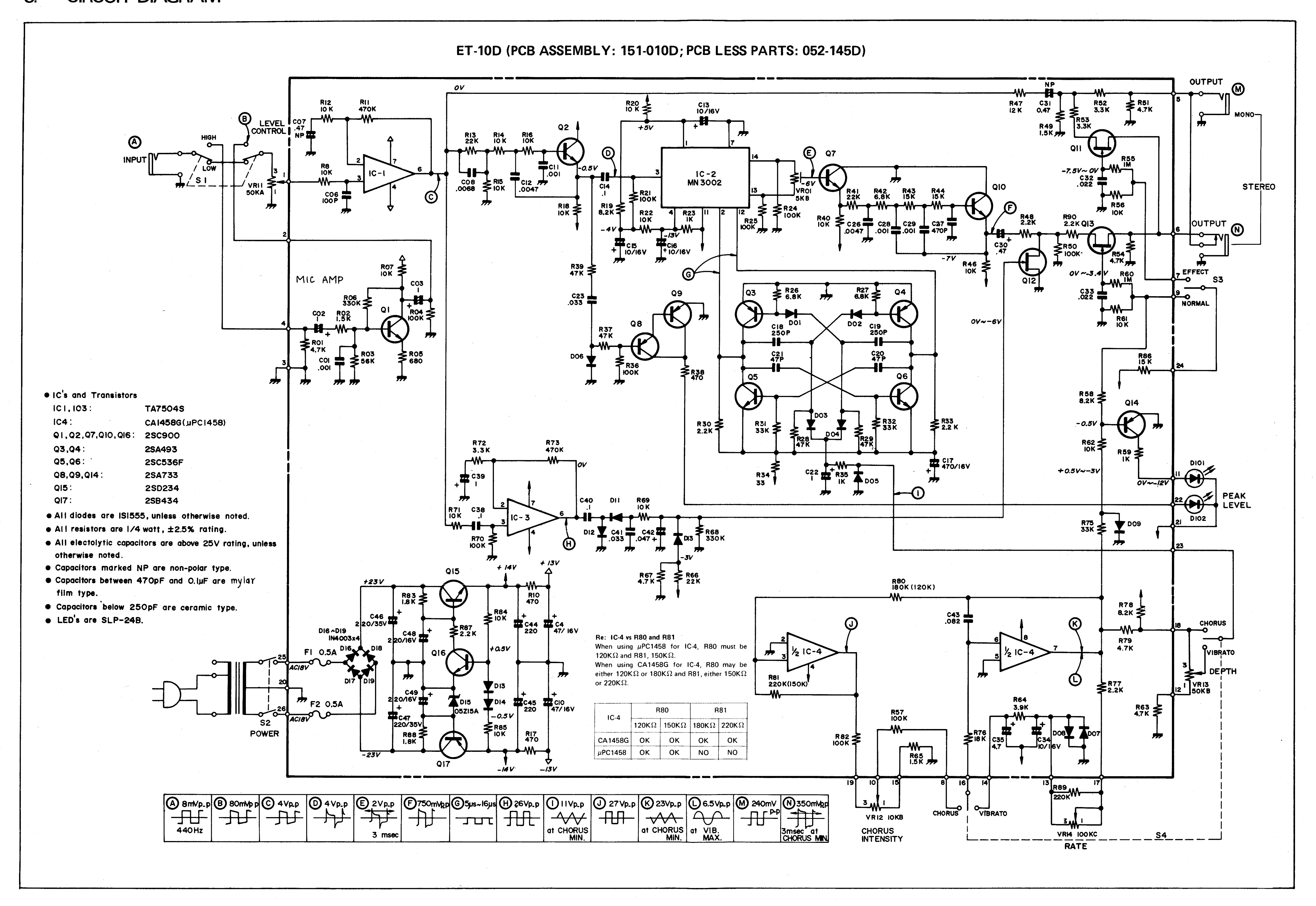


# 4. PC BOARD

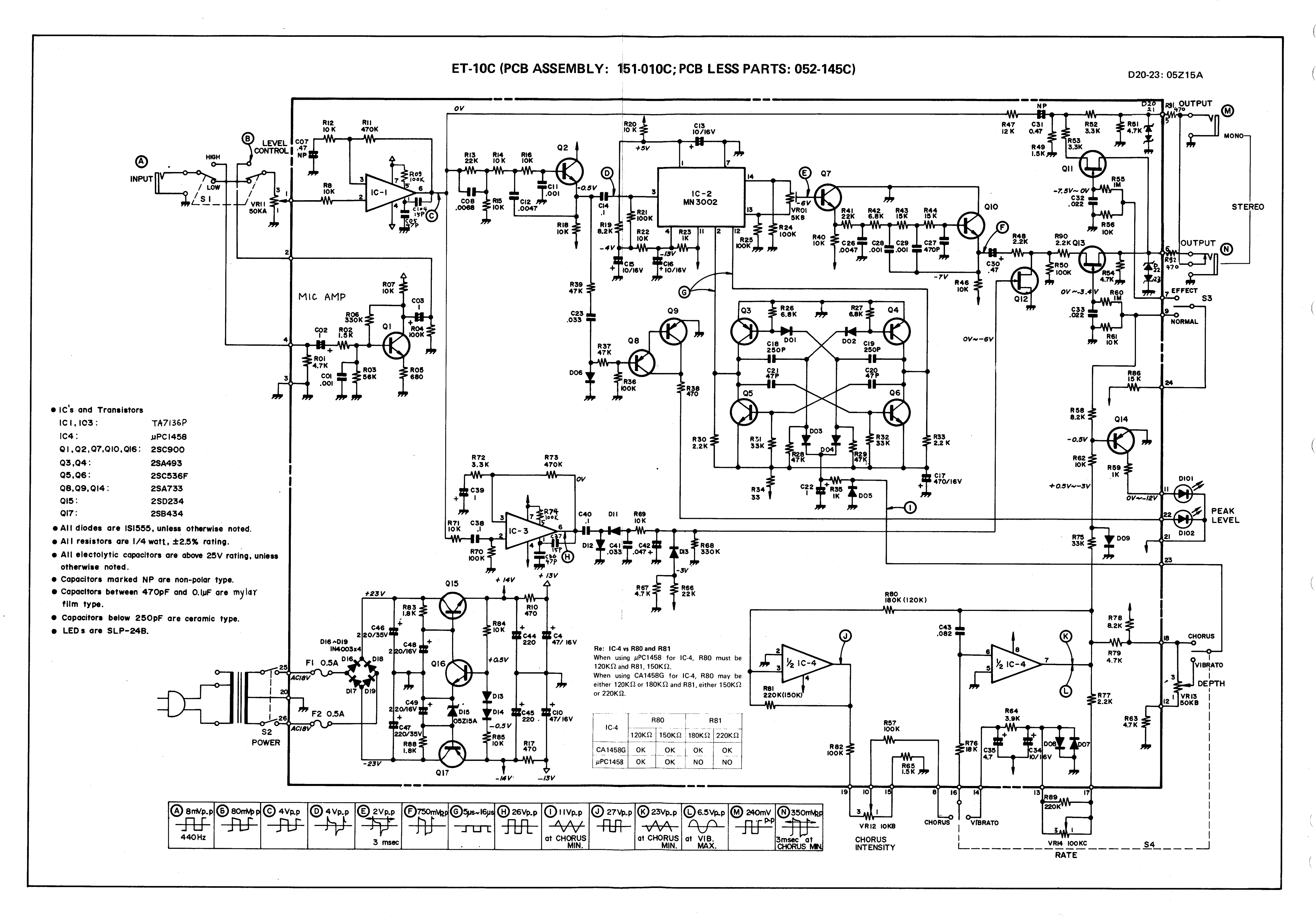



- ELECTROLYTIC
- NON-POLAR, .47/25
- MYLAR, 50VK
- CERAMIC, 50VK
- 1/4 RJ
- 2SC536 F
- 2SA493 GR
- 2SK30A Y
- 2SA733 Q
- 2SC900 F
- 1S1555
- 05Z15A

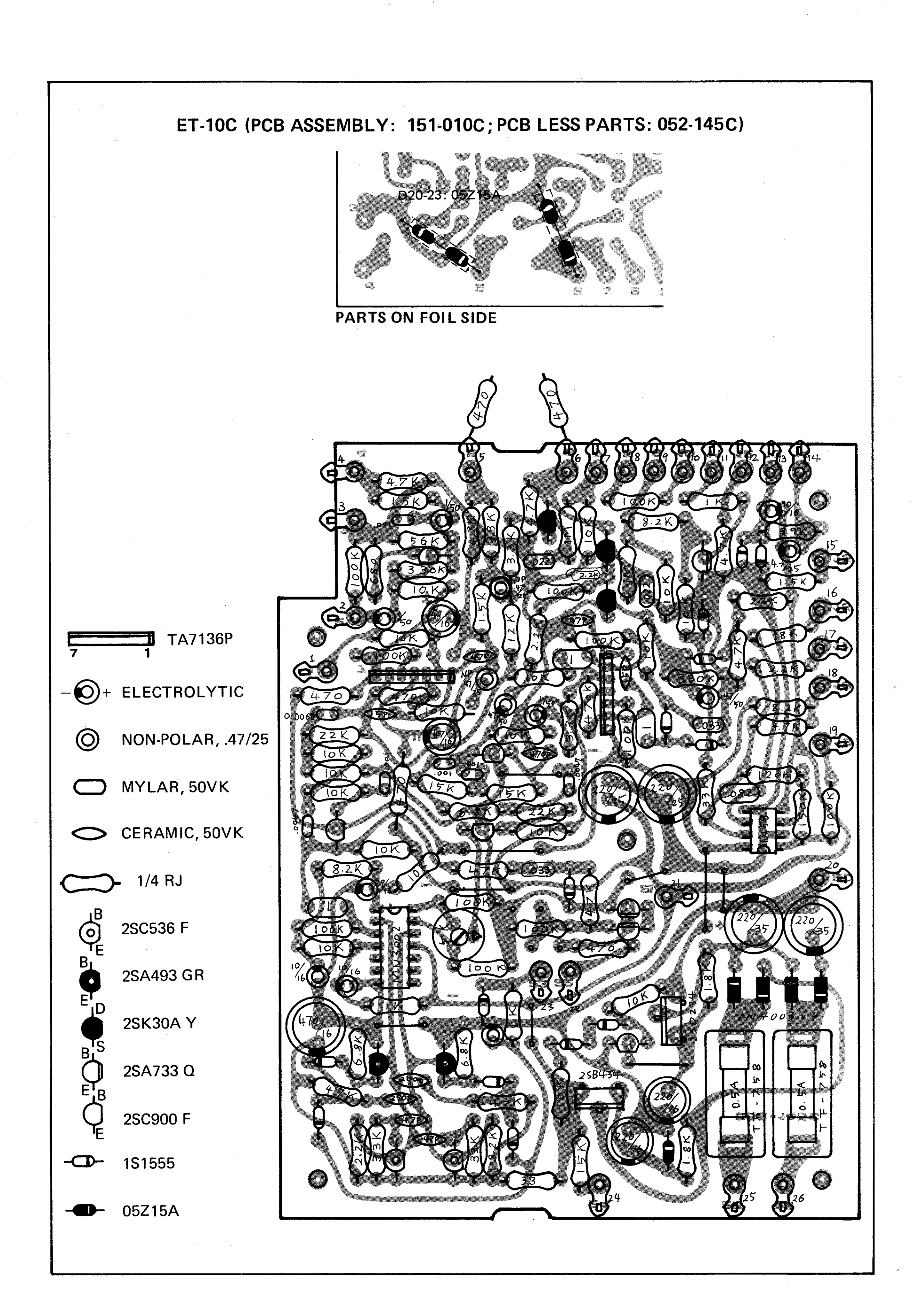
# 5. CIRCUIT DIAGRAM




| IC-4 | R80 | | R81 | |
|---|---|---|---|---|
| | 120KΩ | 150KΩ | 180KΩ | 220KΩ |
| CA1458G | OK | OK | OK | OK |
| μPC1458 | OK | OK | NO | NO |



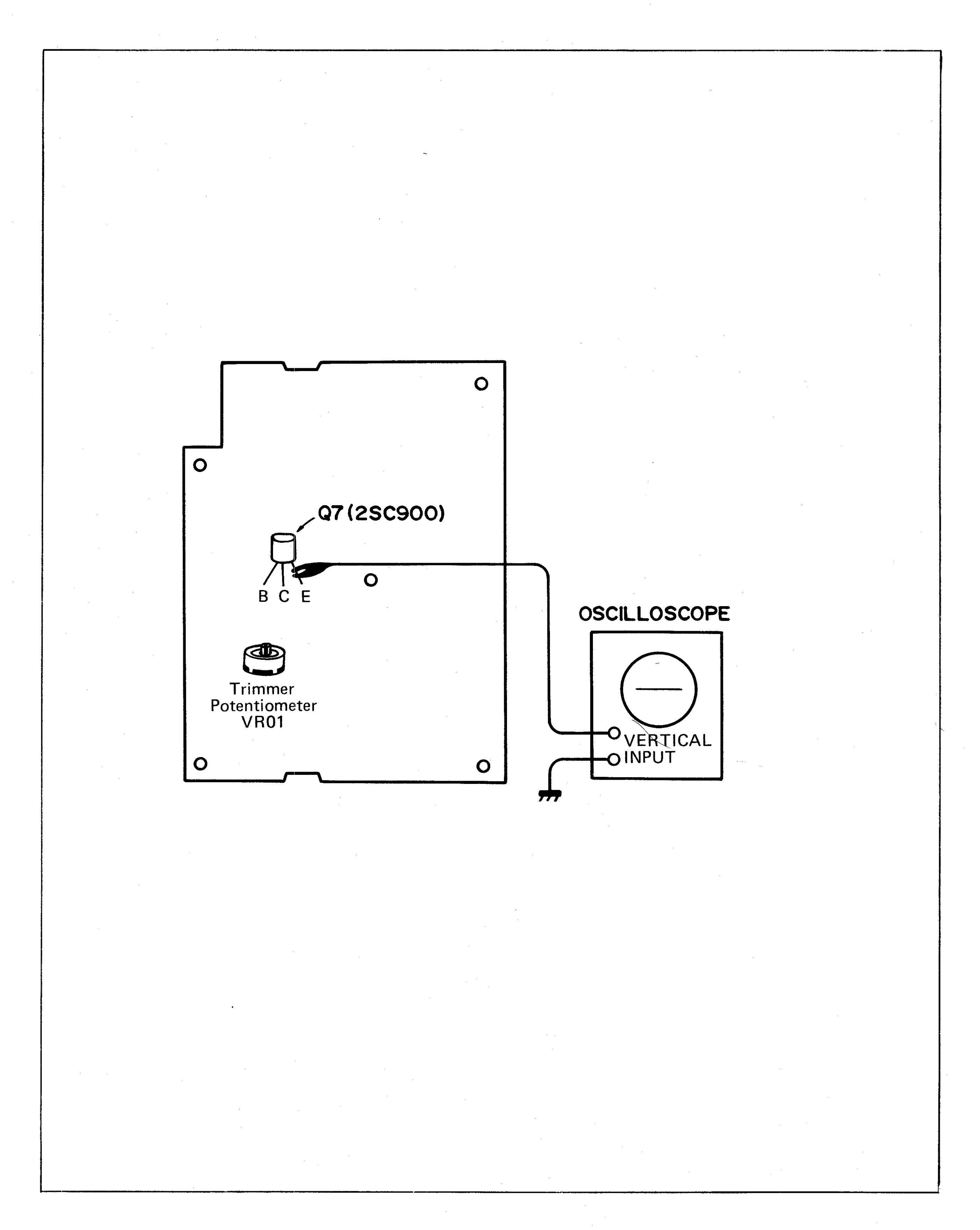

| IC-4 | R80 | | R81 | |
|---|---|---|---|---|
| | 120KΩ | 150KΩ | 180KΩ | 220KΩ |
| CA1458G | OK | OK | OK | OK |
| µPC1458 | OK | OK | NO | NO |


ET-10C (PCB ASSEMBLY: 151-010C; PCB LESS PARTS: 052-145C)
D20-23: 05Z15A
PARTS ON FOIL SIDE
TA7136P
ELECTROLYTIC
NON-POLAR, .47/25
MYLAR, 50VK
CERAMIC, 50VK
1/4 RJ
2SC536 F
2SA493 GR
2SK30A Y
2SA733 Q
2SC900 F
1S1555
05Z15A

# 6. ADJUSTING PROCEDURES

## ADJUSTING BBD OUTPUT WAVEFORMS

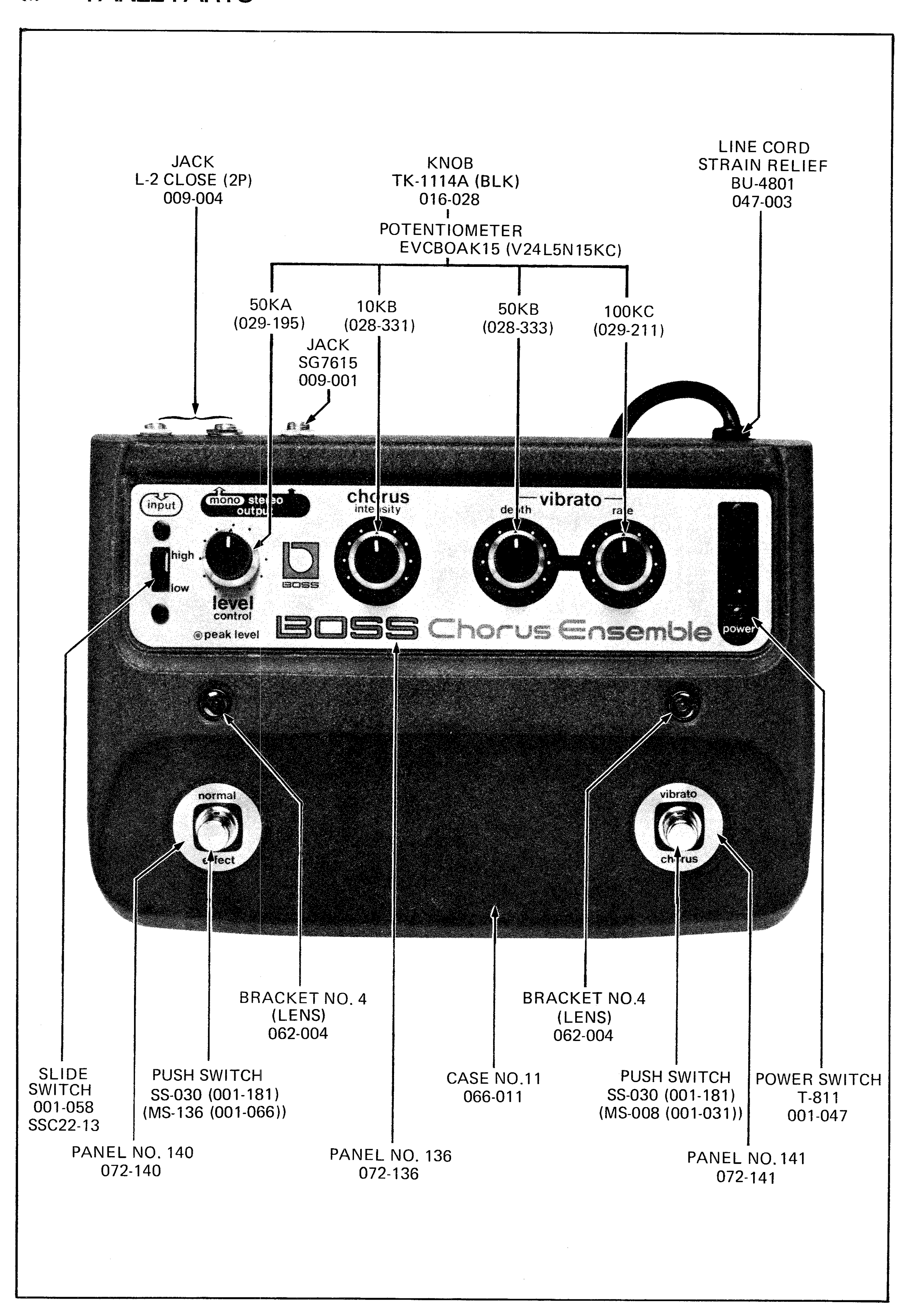
Connect Vertical Input lead of an oscilloscope to emitter of Q7 (2SC900). Adjust trimmer potentiometer, VR01, so that the waveforms of two outputs come as close as possible each other.



# 7. PARTS LIST

| PARTS NO. | PARTS NAME AND DESCRIPTION |
|---|---|
| 052-145D | Printed Circuit Board No. 145D (less parts) → No. 145C |
| 020-030 | IC, MN3002 |
| 020-061 | IC, TA7504S → TA7136P (020-027) |
| 020-062 | IC, μPC1458 |
| 017-014 | FET, 2SK30A Y |
| 017-012 | Transistor, 2SA733 Q |
| 017-021 | Transistor, 2SC900 F |
| 017-009 | Transistor, 2SA493 GR |
| 017-037 | Transistor, 2SC536 F |
| 017-022 | Transistor, 2SB434 |
| 017-010 | Transistor, 2SD234 |
| 018-005 | Diode, 1S1555 |
| 018-022 | Diode, 1N4003 |
| 018-024 | Diode, 05Z15A |
| | *Carbon film resistors of 1/4W, ±5% rating are omitted. |
| 037-002 | Capacitor, 50V, 15pF, ±10%, Ceramic |
| 037-005 | Capacitor, 50V, 47pF, ±10%, Ceramic |
| 037-006 | Capacitor, 50V, 100pF, ±10%, Ceramic |
| 037-007 | Capacitor, 50V, 250pF, ±10%, Ceramic |
| 035-001 | Capacitor, 50V, 470pF, ±10%, Mylar |
| 035-005 | Capacitor, 50V, 0.001μF, ±10%, Mylar |
| 035-012 | Capacitor, 50V, 0.0047μF, ±10%, Mylar |
| 035-014 | Capacitor, 50V, 0.0068μF, ±10%, Mylar |
| 035-020 | Capacitor, 50V, 0.022μF, ±10%, Mylar |
| 035-022 | Capacitor, 50V, 0.033μF, ±10%, Mylar |
| 035-027 | Capacitor, 50V, 0.082μF, ±10%, Mylar |
| 035-028 | Capacitor, 50V, 0.1μF, ±10%, Mylar |
| 032-070 | Capacitor, 50V, 0.47μF, Electrolytic |
| 032-071 | Capacitor, 50V, 1μF, Electrolytic |
| 032-046 | Capacitor, 25V, 4.7μF, Electrolytic |
| 032-033 | Capacitor, 16V, 10μF, Electrolytic |
| 032-036 | Capacitor, 16V, 47μF, Electrolytic |
| 032-040 | Capacitor, 16V, 470μF, Electrolytic |
| 032-052 | Capacitor, 25V, 220μF, Electrolytic |
| 032-066 | Capacitor, 35V, 220μF, Electrolytic |
| 032-038 | Capacitor, 16V, 220μF, Electrolytic |
| 032-193 | Capacitor, 50V, 0.47μF, Non-polar |
| 028-003 | Trimmer Potentiometer, 5KΩ (B) EVL-R4XA00 |
| 008-024 | Fuse (Midget), 0.5A, SGA-0500 |
| 012-003 | Fuse Holder, TF-758 |

# 8. PANEL PARTS



# 9. WIRING ILLUSTRATION

